

Making Rash Decisions: Eczema vs. Atopic Dermatitis

Clinician's Breakout Session

American Academy of Dermatology

Julie Kenner, MD, MPH

Sheila Fallon Friedlander, MD

Jon Hanifin, MD

Scott A. Norton, MD, MPH

Why screen for dermatologic contraindications?

Certain skin diseases predispose to disseminated and virulent replication of the virus in the vaccinee's epidermis.

This adverse reaction is called eczema vaccinatum and it can be fatal.



Why screen for dermatologic contraindications?

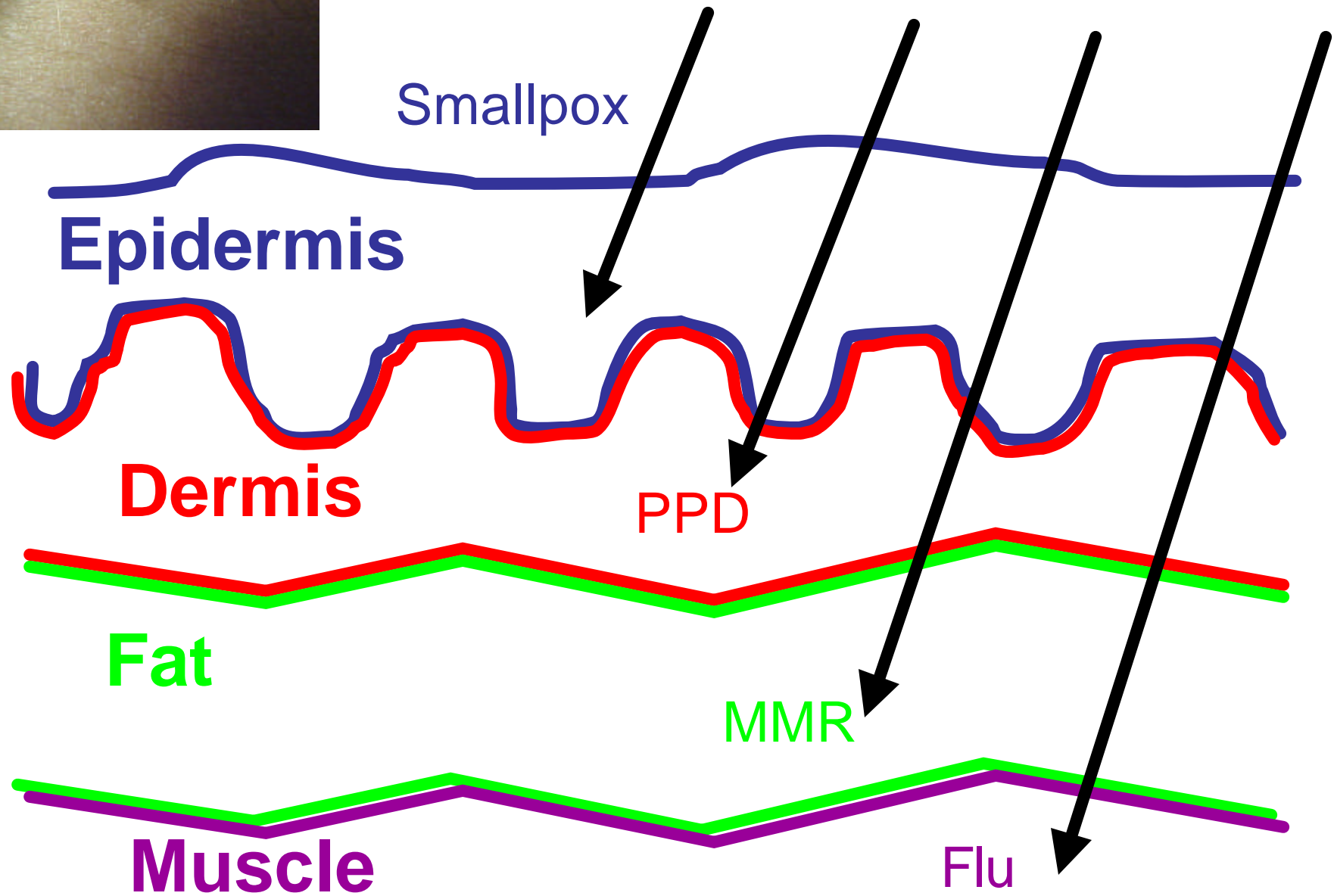
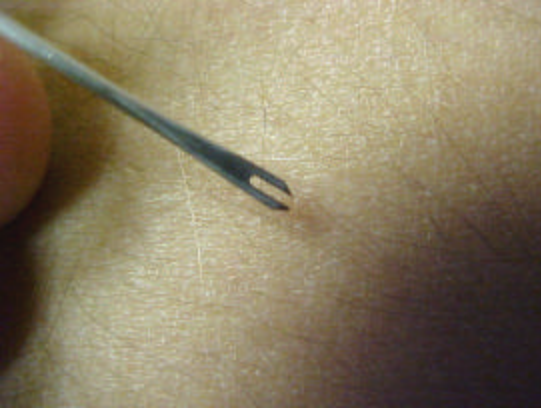
The skin disease most often associated with eczema vaccinatum is atopic dermatitis, also called childhood eczema.

Although atopic dermatitis is common, there are no standard diagnostic criteria.

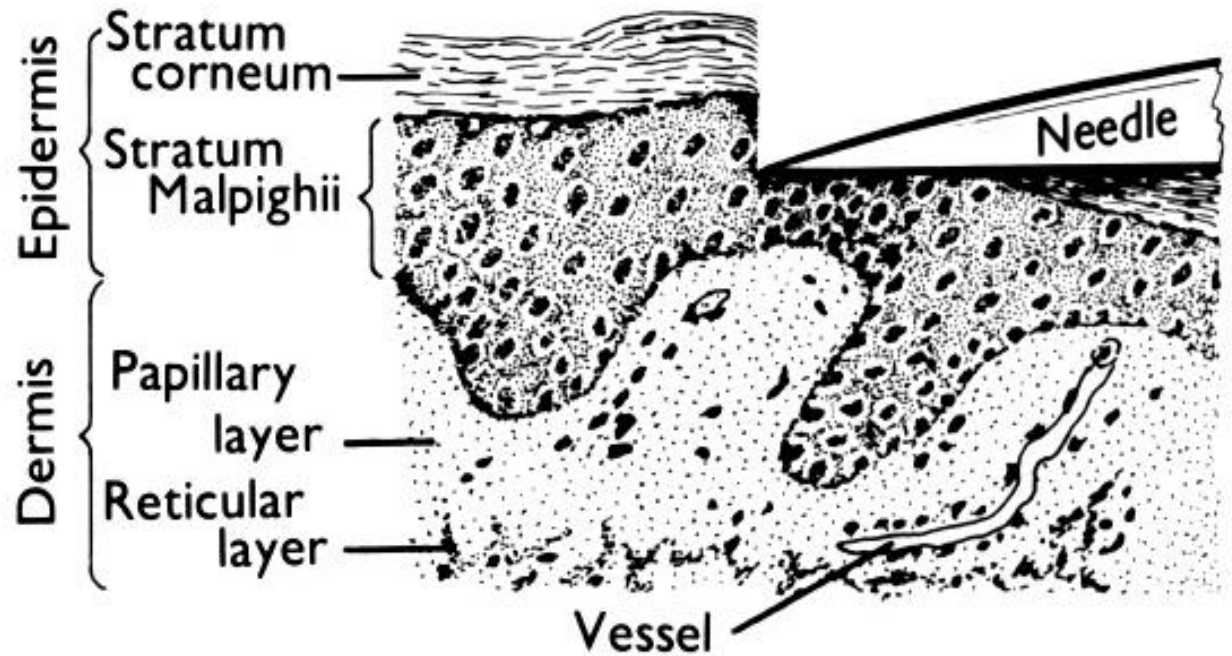
In atopic individuals, the risk for eczema vaccinatum persists even after the disease has become inactive.



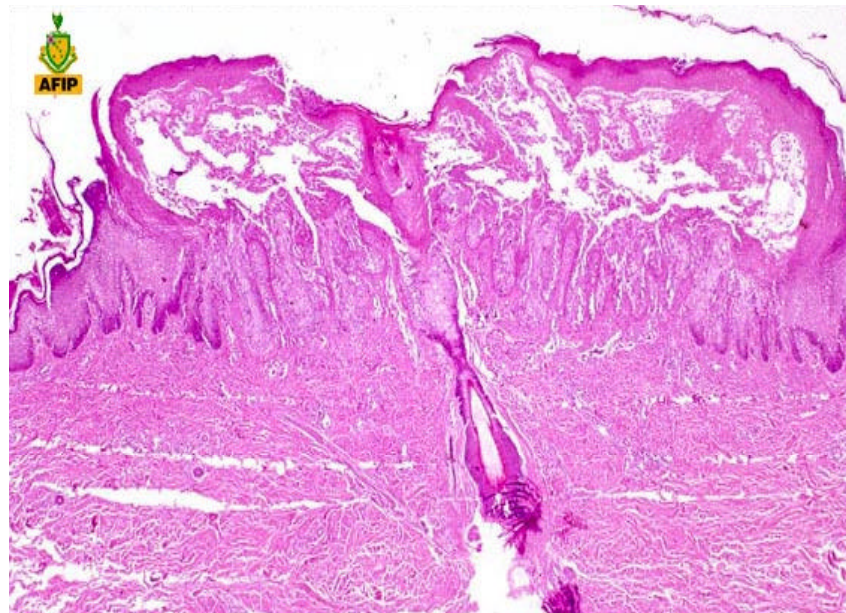
Site of inoculation



Vaccinia is introduced into the epidermis ...



... and replicates there





Vaccinia replicates in the epidermis at the puncture site ... but if the integrity of the epidermis is disrupted ...



Vaccinia replicates in the epidermis at the puncture site but if the integrity of the epidermis is disrupted ...

... **eczema vaccinatum**



Vaccinia replicates in the epidermis at the puncture site but if the integrity of the epidermis is disrupted ...

... **eczema vaccinatum**

Eczema vaccinatum – 3% of total complications

7% of cases were fatal

Mortality rate < 2yrs = 30-40% (despite treatment with VIG)

1/3 to 2/3 of cases were in contacts of vaccinees

Clinical course more severe in contacts than in vaccinees



Background

- Certain rashes predispose patients to eczema vaccinatum following smallpox vaccination
- During smallpox vaccine era, US vaccinators did not routinely differentiate between “eczema” and “atopic dermatitis” (AD) when reporting side effects
- Worldwide literature review suggests specific risk lies with AD

Atopic Dermatitis (AD)

- AD is 2-3X more prevalent today than 40 yrs ago
- AD affects 10-20% of current population
- Eczema vaccinatum risk in those with active AD
– and those with past, now dormant, AD
- Primary vaccinees AND their contacts are at risk for eczema vaccinatum

Eczema Vaccinatum (EV)

- 1-6% associated mortality
- No way to predict which people with AD will get this EV, but highest rates are in first time vaccinees (currently comprising at least 40% of the US population) and contacts of vaccinees

Magnitude of Concern

- If we were to exclude all patients and their household contacts with a history of any form of eczema, the incidence of adverse effects would decline, BUT significant segment of the US population from be ineligible for vaccination (perhaps 25-50%)

Status

- Goal is to identify potential vaccinees who are at increased risk: to distinguish those with AD from those with other forms of eczema
- Recent unpublished study revealed that 30-40% patients with validated AD failed to self report.
- Thus, ***onus is on vaccinator*** to identify at risk populations!

Status

- Majority of primary care providers do not differentiate between eczema and AD, due to
 - Lack of simple consensus clinical criteria
 - No objective laboratory diagnostic marker

Eczema = Dermatitis

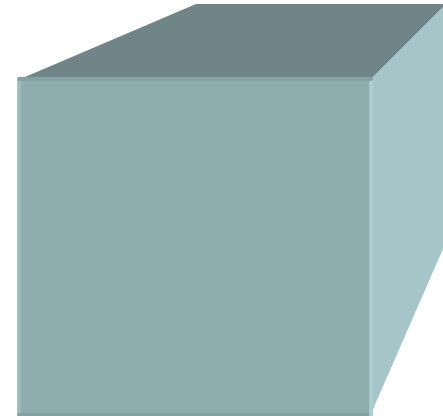
- General (“wastebasket”) terms
 - Non-specific red, scaly, itchy rash that may ooze or crust
 - Does NOT discriminate between
 - allergic contact dermatitis
 - seborrheic dermatitis
 - irritant dermatitis
 - nummular dermatitis
 - atopic dermatitis
 - dozens of other forms of eczema or dermatitis
 - Atopic dermatitis is often called “childhood eczema” and it is the most common form of pediatric eczema.

Atopic dermatitis

- ***Specific term***, describing a particular rash that is red, scaly and very itchy.
- Remitting and relapsing course with predilection for certain body sites
- No single objective marker, but disease is characterized by cluster of clinical findings and multiple immunologic abnormalities.
- Altered immunology may persist beyond apparent resolution of rash -- the likely reason for persistent vulnerability to vaccine side effects

Atopic Dermatitis

- Disease results from interaction between
 - Susceptibility genes
 - Host environment
 - Skin barrier defects
 - Immunological factors



Atopic Dermatitis

- Most common among children
 - 50% of children with AD are affected by 1 y/o
 - 80% of children with AD are affected by 5 y/o
- Characterized by episodes of exacerbation and remission
- Although most children with AD outgrow their disease, it may be lifelong.

Atopic Dermatitis

- **Hallmark = Hyperirritable skin** with key symptom **PRURITUS** (itchiness)
- Exacerbated by multiple factors:
 - Anxiety
 - Temperature changes
 - Humidity
 - Irritants
 - “Scratchy” materials (eg, wool)
 - Allergens
 - Infections

Atopic Dermatitis

- Scratching of skin leads to clinical appearance
 - **ACUTE**: erythema, mild to moderate scale, small papules or vesicles, excoriation marks
 - **CHRONIC**: lichenification (thickening of skin with exaggeration of skin lines), hyperpigmentation, excoriation marks

Atopic Dermatitis

- Skin findings:
 - Usually **symmetrical**
 - Changes location with age (partly due to differences in scratching coordination)
 - **Infants:** face, scalp, neck, extensor surfaces
 - **Post-infancy children:** flexural surfaces (folds) of arms and legs
 - **Adults:** as with children, or may be localized to eyelids, hands, or nipples

Atopic Dermatitis

- Concurrent clinical findings
 - Dry skin
 - Asthma
 - Environmental or food allergies

Atopic Dermatitis



Typical Flexure Distribution of pruritic plaques

Atopic Dermatitis



Severe childhood Atopic Dermatitis

Atopic Dermatitis



Note follicular prominence and hypopigmented patches which can be a sign of atopic dermatitis

Atopic Dermatitis



Atopic Dermatitis



Atopic Dermatitis





Screening Tool

- The following are highly suspicious of AD:
- **Recurring itchy red rash that lasts more than 2 weeks PLUS:**
 - Rash involves the flexures
 - » OR
 - Rash started before age 5
 - Personal history of allergies (food/envIRON)
 - First degree relative with AD

Other Skin Lesions

- **NOTE:** non-atopic eczematous diseases, as well as conditions which ***disrupt skin integrity***, are probably contraindications to vaccination while the disease is ***active***; these individuals may usually be vaccinated after their disease is under control.

Seborrheic Dermatitis



Nummular Dermatitis



Allergic Contact Dermatitis



Contact Allergic Dermatitis



Summary:

Dermatologic Contraindications

- Eczema comprises a number of disorders which affect a significant portion of the population; those with atopic dermatitis are at particular risk for severe eczema vaccinatum following vaccination.
- Atopics who are completely clear and seemingly in remission are still at risk
- Atopics who are merely close contacts of vaccinees are at risk, and in fact appear at higher risk for severe disease

Summary:

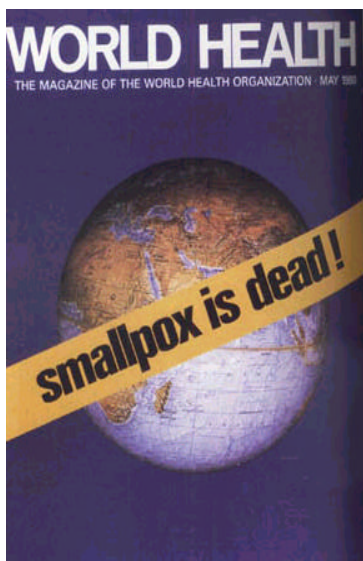
Dermatologic Contraindications

- Non-atopic eczematous diseases, as well as conditions which disrupt skin integrity, are probably contraindications to vaccination while the disease is active; however they may usually be vaccinated when their disease is under control.



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